



Figure 1B

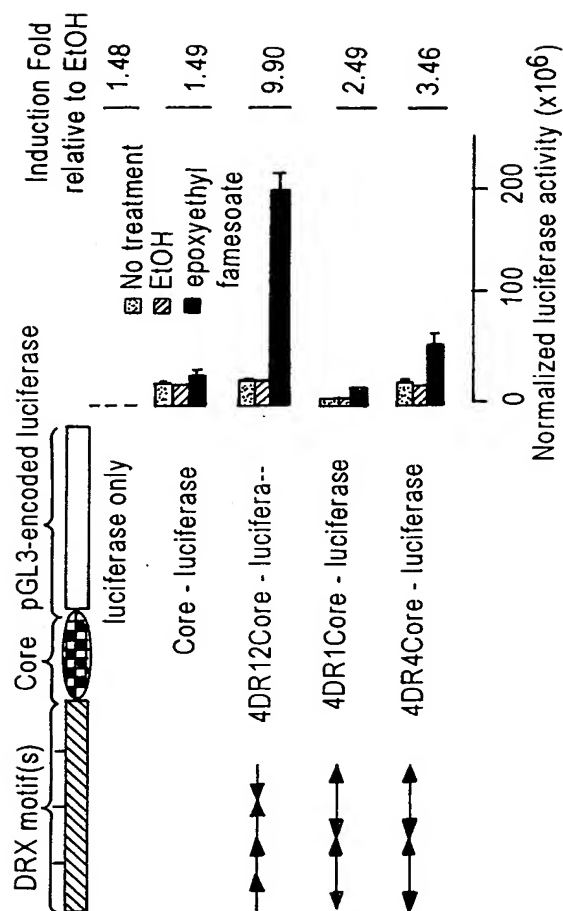


Figure 1A

sequence
of single
DRX:

Seq ID No: 13 DR1: CAAGGTCAAAGGTCAG

Seq ID No: 14 CAAGGTCAAAGAAAGGTCAG

Seq ID No: 15 DR12: CAAGGTCAAAGAGGCCAAAGAAAGGTCAG

Seq ID No: 23 mut DR12: CAAGGacatAGAGGCCAAAGAAAGGacatG

Figure 2A

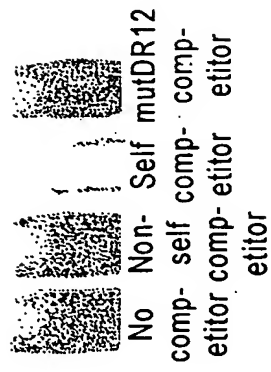


Figure 2B

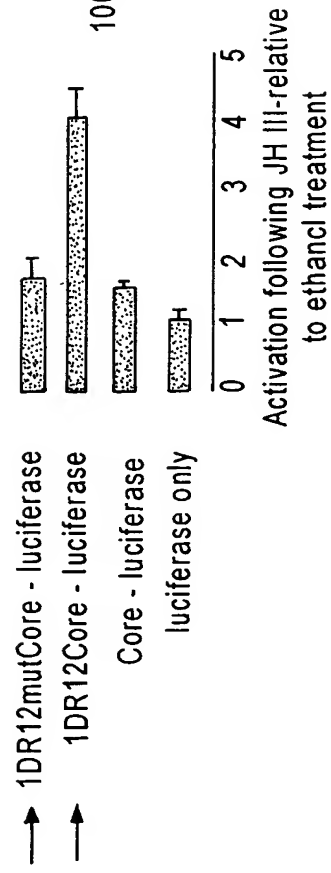


Figure 2C

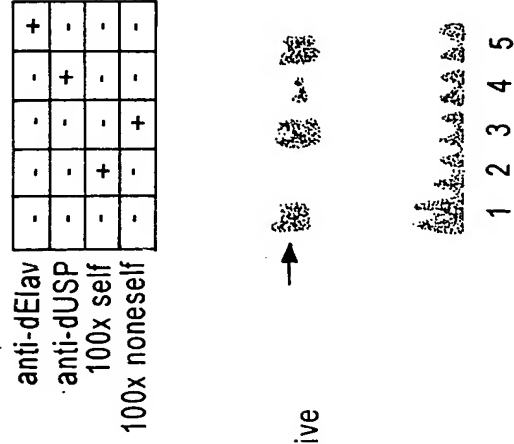


Figure 3A

Panel A

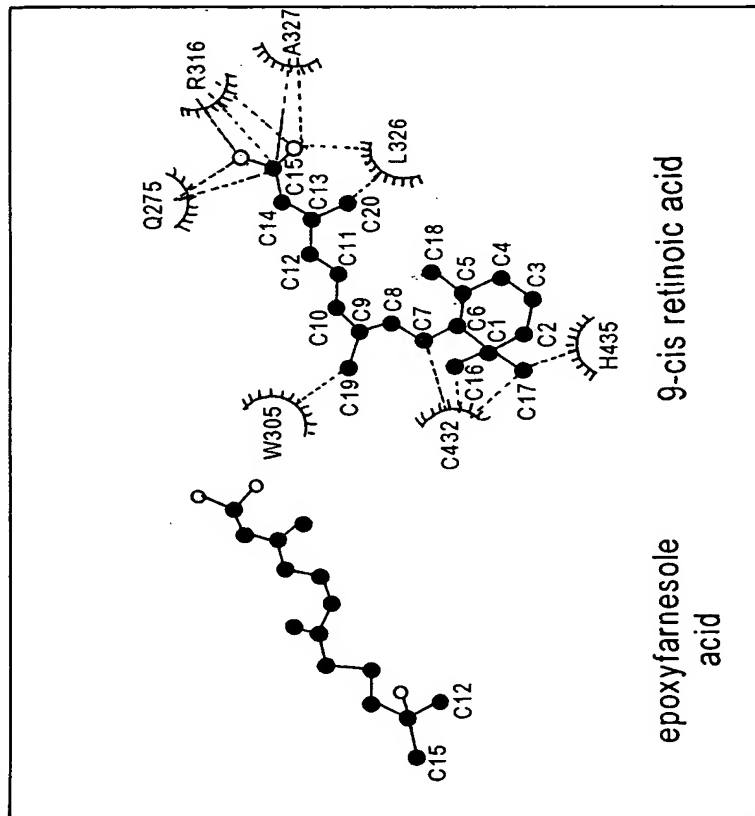


Figure 3B

Panel B - human RXR α

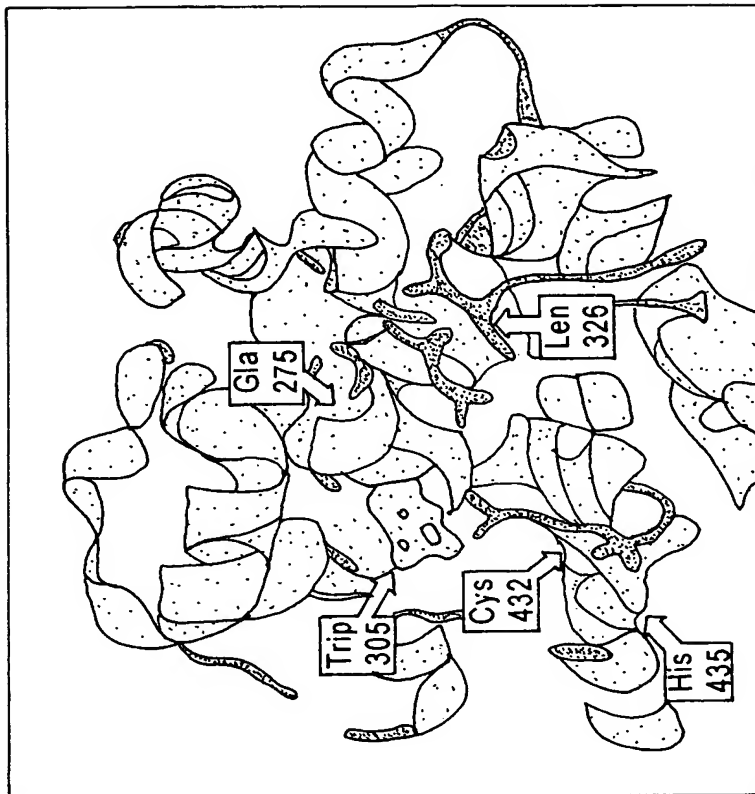


Figure 3C

Panel C - *Drosophila* USP

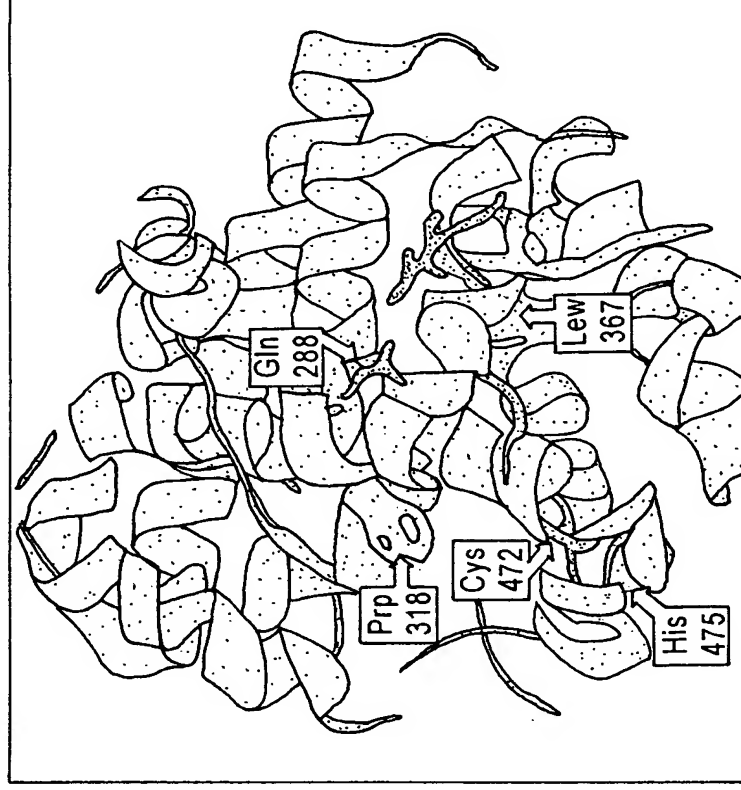


Figure 3D

Panel D - Overlay

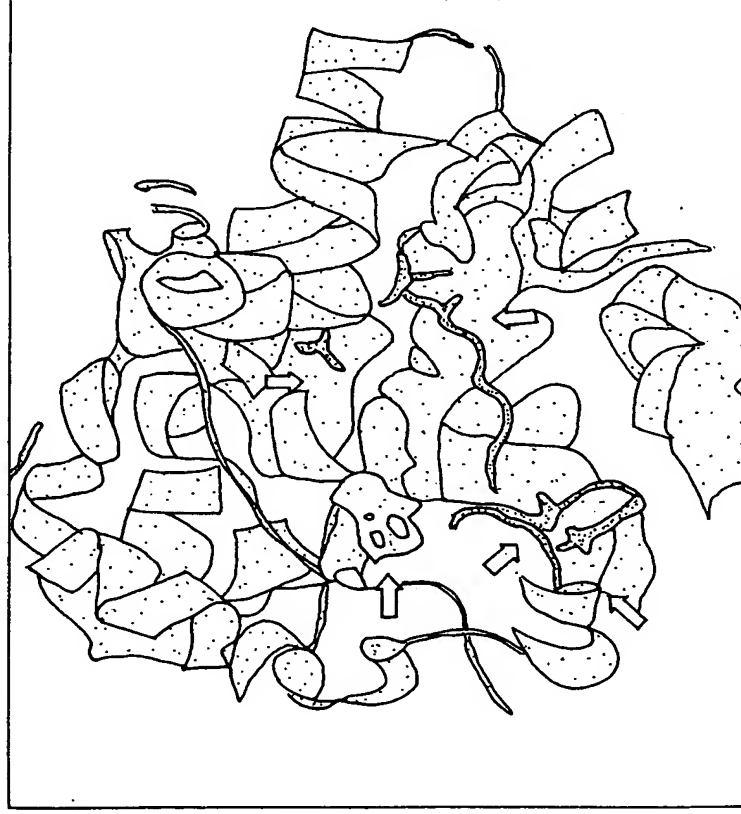


Figure 4A

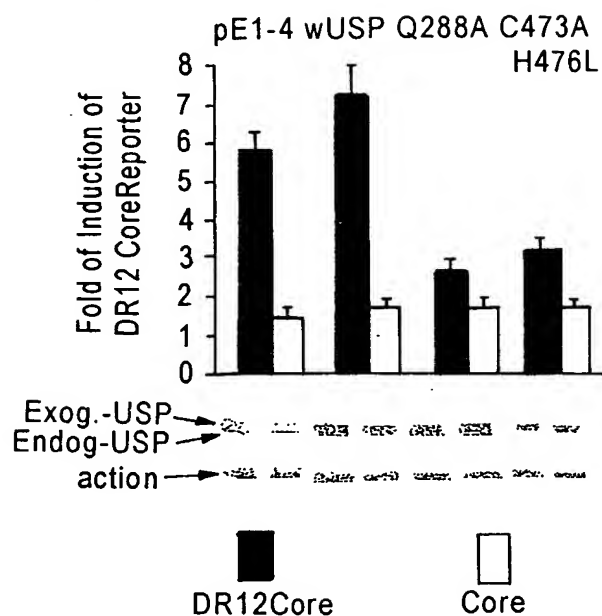


Figure 4B

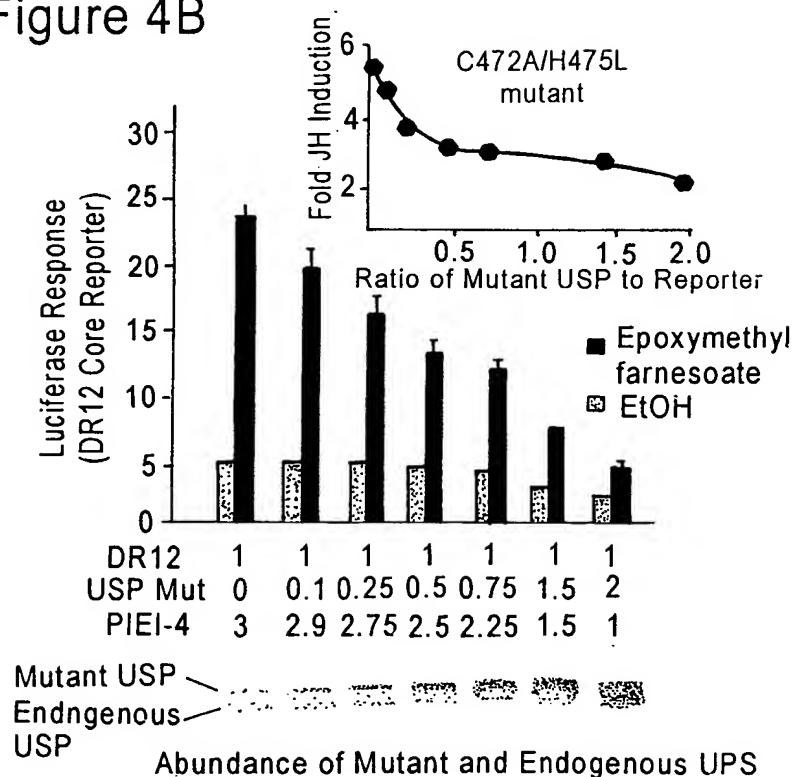


Figure 4C

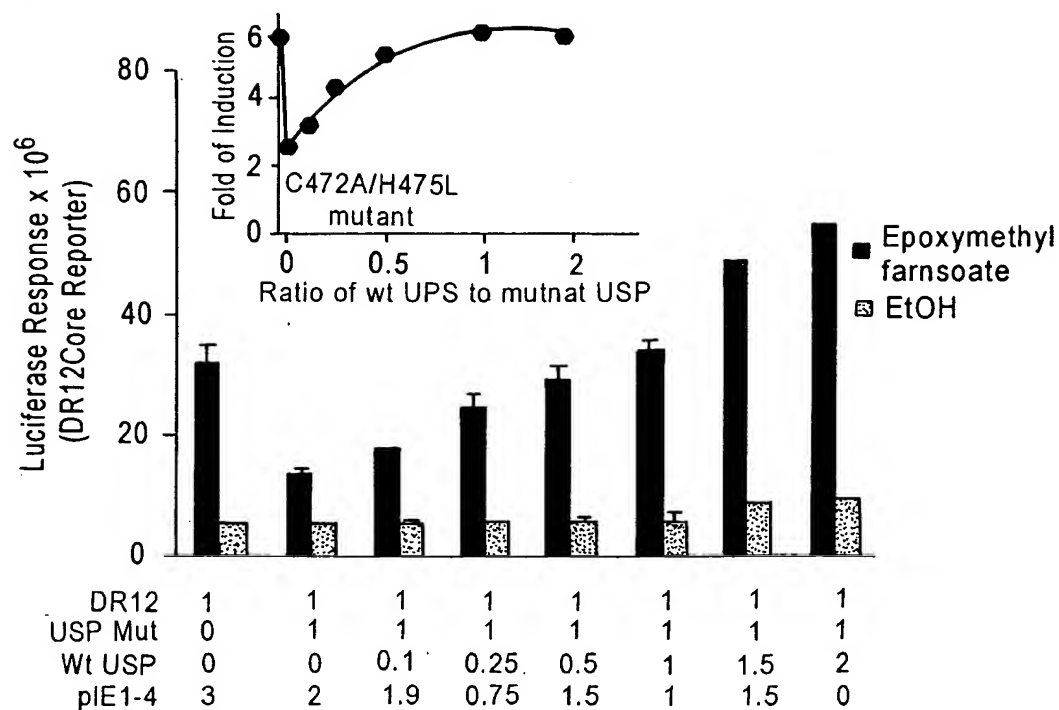


Figure 5A

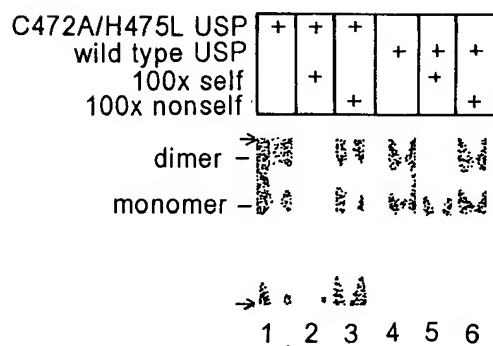


Figure 5B

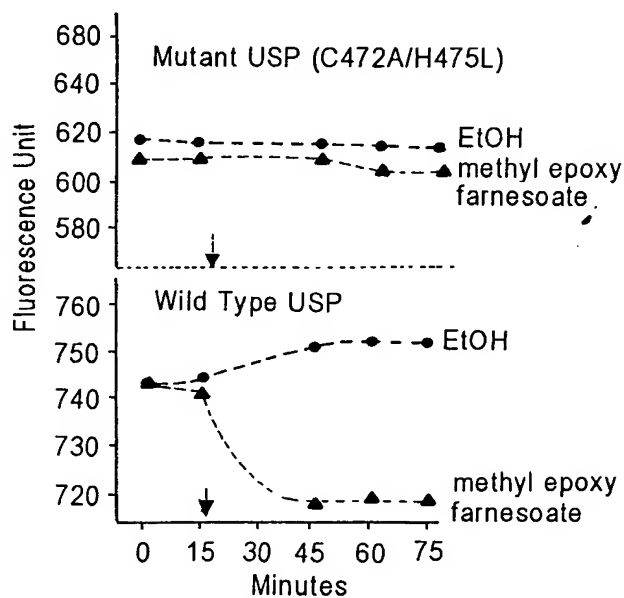


Figure 6A

Replace two proline
residues at the end of
on helix 12 with
two tryptophanes

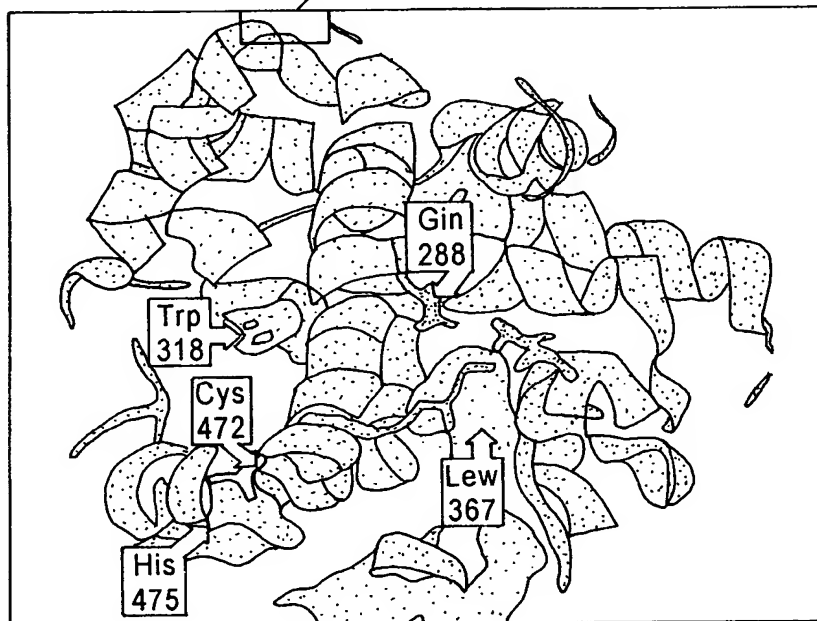


Figure 6B

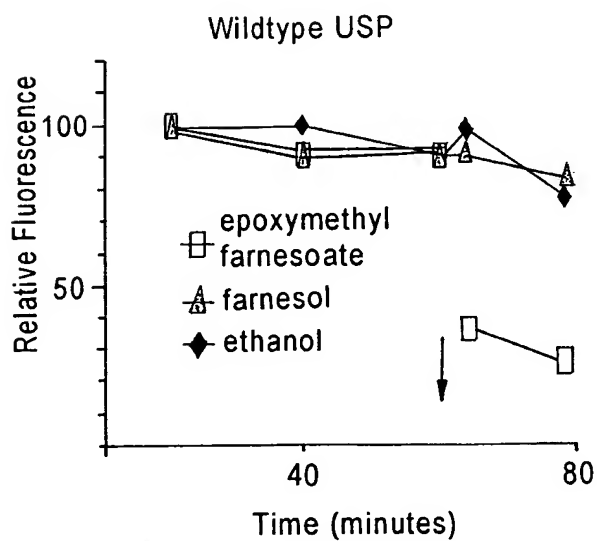


Figure 6C

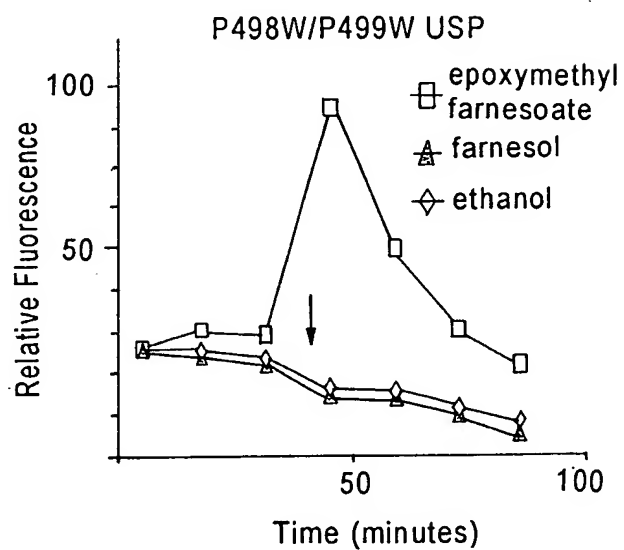


Figure 7A

SEQ ID NO: 1: Wild type Drosophila USP cDNA

```
1  aaaaatgtcg acgcgaaaaa aggtatttat tcattagtca
gaaagtctgg cattctttgt
61  ttgttggtaa aaagcgcaat tgtttgagg cgagcgaata
aagtgcgctg ctccatcggc
121 tcaagattat gtaaattgcag caacgacccc accaacaacg
aaactgcaac ctgctccact
181 tggcccaacg gaccaatagc ggacggacgg acacggtggc
gttggcaaag tgaaacccca
241 acagagaggc gaaagcgagc caagacacac cacatacaca
cgaagagaac gagcaagaag
301 aaaccggtag gcggaggagg cgctgcccc agttcctcca
atatacccag caccacatca
361 caagcccagg atggacaact gcgaccagga cgccagcttt
cggctgagcc acatcaagga
421 ggaggtcaag ccggacatct cgcagctgaa cgacagcaac
aacagcagct tttcgcccaa
481 ggccgagagt cccgtgccct tcatgcaggc catgtccatg
gtccacgtgc tgcccggctc
541 caactccgcc agtccaaca acaacagcgc tggagatgcc
caaatggcgc aggcgcccaa
601 ttcggctgga ggctctgccg ccgctgcagt ccagcagcag
tatccgccta accatccgct
661 gagcggcagc aagcacctct gctctatttg cggggatcgg
gccagtggca agcactacgg
721 cgtgtacagc tgtgagggct gcaagggctt ctttaaacgc
acagtgcgca aggatctcac
781 atacgcttgc agggagaacc gcaactgcat catagacaag
cggcagagga accgctgcca
```


Figure 7B

841 gtactgccgc taccagaagt gcctaacctg cggcatgaag
cgccaagcgg tccaggagga

901 gcgtcaacgc ggcgcccgcga atgcggcggg taggctcagc
gccagcggag gcggcagtag

961 cgggccaggt tcggtaggcg gatccagctc tcaaggcgga
ggaggaggag gcggcgtttc

1021 tggcggaatg ggcagcggca acggttctga tgacttcatg
accaatagcg tgtccaggga

1081 tttctcgatc gagcgcacatca tagaggccga gcagcgagcg
gagacccaat gcggcgatcg

1141 tgactgacg ttcttgccg ttggtccta ttccacagtc
cagccggact acaagggtgc

1201 cgtgtcggcc ctgtgccaaag tggtaacaa acagctcttc
cagatggctg aatacgcgcg

1261 catgatgccg cactttgcc aggtgccgct ggacgaccag
gtgattctgc tgaaagccgc

1321 ttggatcgag ctgctcattg cgaacgtggc ctggtgcagc
atcgtttcgc tggatgacgg

1381 cggtgccggc ggcgggggcg gtggactagg ccacgatggc
tcctttgagc gacgatcacc

1441 gggccttcag cccagcagc tgttcctcaa ccagagcttc
tcgtaccatc gcaacagtgc

1501 gatcaaagcc ggtgtgtcag ccatcttcga ccgcatattg
tcggagctga gtgtaaagat

1561 gaagcggctg aatctcgacc gacgcgagct gtcttgcttg
aaggccatca tactgtacaa

1621 cccggacata cgcgggatca agagccgggc ggagatcgag
atgtgccgcg agaaggtgta

1681 cgcttgccctg gacgagcact gccgcctgga acatccgggc
gacgatggac gctttgcgca

1741 actgctgctg cgtctgcccg ctttgcgac gatcagcctg
aagtgccagg atcacctgtt

Figure 7C

1801 cctcttccgc attaccagcg accggccgct ggaggagctc
tttctcgagc agctggaggc

1861 gccgccgcca cccggcctgg cgatgaaact ggagtagggt
cccgactcta aagtctcccc

1921 cgttctccat ccgaaaaatg ttctattgtg attgcgtttg
tttgcatttc tcctctctat

1981 cccttatacc ctacaaaagc cccctaatat tacgcaaaat
gtgtatgtaa ttgtttattt

2041 tttttttatt acctaataat attattatta ttgatataga
aaatgttttc cttaagatga

2101 agattagcct cctcgacgtt tatgtcccag taaacgaaaa
acaaacaaaa tccaaaactt

2161 gaaaagaaca caaacacga acgagaaaat gcacacaagc
aaagtaaaag taaaagttaa

2221 actaaagcta aacgagtaaa gatattaaaa taacggttaa
aattaatgca tagttatgat

2281 ctacagacgt atgtaaacat acaaattcag cataaatata
tatgtcagca ggcgcatatc

2341 tgcggtgctg gccccgttct aaatcaattg taattacttt
ttaacataaa ttaccctaaa

2401 acgttatcaa ttagatgcga gatacaaaaa tcaccgacga
aaaccaacaa aatatatcta

2461 tgtataaaaa atataaactg cataacaa

Figure 8

SEQ ID NO: 2 Wild Type Drosophila USP Amino Acid Sequence

MDNCDQDASF RLSHIKEEVK PDISQLNDSN NSSFSPKAES PVPFMQAMSM 50
VHVLPGSNSA SSNNNSAGDA QMAQAPNSAG GSAAAVQQQ YPPNHPLSGS 100
KHLCSICGDR ASGKHVGVYS CEGCKGFFKR TVRKDLTYAC RENRNCIIDK 150
RQRNRCQYCR YQKCLTCGMK REAVQEERQR GARNAAGRLS ASGGGSSGPG 200
SVGGSSSQGG GGGGGVSGGM GSGNGSDDFM TNSVSRDFSI ERIIEAEQRA 250
ETQCGDRALT FLRVGPYSTV QPDYKGAVSA LCQVVNKQLF QMVEYARMMP 300
HFAQVPLDDQ VILLKAAWIE LLIANVAWCS IVSLDDGGAG GGGGGLGHDG 350
SFERRSPGLQ PQQLFLNQSF SYHRNSAIKA GVS AIFDRIL SELSVKMKRL 400
NLDRELSCL KAIILYNPDI RGIKSRAEIE MCREKVYACL DEHCRLEHPG 450
DDGRFAQLLL RLPALRSISL KCQDHLFLFR ITSDRPLEEL FLEQLEAPPP 500
PGLAMKLE 508

Figure 9A

Sequences of several core promoters and Misc. Sequences

AJHSP1 (SEQ ID NO: 3)

GACCAATTAA TAGGTGACCT GCGATAAAAA TTACCTATAA ATATGTGATG TTGCTGGATT G

BJHSP1 (SEQ ID NO: 4)

CGAGAGGTTA TCGCCCAATA CAACAACAAT GATAATGACG TGCAAGCAGA TAATAGTGAA
AAAATAACAG ATACTAGAGT ATAAAAAGGG GATGCTGGGA GTGGACAGGC ACAGTCGTGG
TGTGGCAGCA AACA

BJHSP2 (SEQ ID NO: 5)

TCAGTATAAA AAGGGGTGCA TTCTCGGTAA GAGTACAGTT GAACTCACAT CGAGTTAACT
CCACGATGA

ARYL (SEQ ID NO: 6)

TAAGGGTAGT ATAAAAAGGC GATCAATCAT TGACAAACAG TTTGCAGCAG GCTGTGGGAA CGA

EcRE (SEQ ID NO: 7)

GAGGTCAATGACCTC

DR Forward: (SEQ ID NO: 8)

5'-AGGTCAN_xAGGTCA-3'

DR reverse: (SEQ ID NO: 9)

5'-TGACCTN_xTGACCT-3'

SEQ ID NO: 10

AGGTCANAGGTCA

SEQ ID NO: 11

AGGTCANAGGTCAAGGTCANAGGTCA

SEQ ID NO: 12

AGGTCANAGGTCATGACCTNTGACCT

SEQ ID NO: 13

5'-CAAGGTCAAAGGTCAG-3'

Figure 9B

SEQ ID NO: 14

5'-CAAGGTCAAGAAAGGTCAG-3'

SEQ ID NO: 15

5'-CAAGGTCAAGAAGGCCAAAGAGGTCAG-3'

SEQ ID NO: 16

CAAGGTCANNNNNNNNNNNNAGGTCAG

SEQ ID NO: 17

GGTACCGAGCTCTTACGCGTGCTAGCCCGGGCTCGA

SEQ ID NO: 18

CGGTATTTACACCGCAcATGGTGCACTCTCAGTACAATC

SEQ ID NO: 19

GTGCCAAGTGGTCAACAAAgcGCTCTTCCAGATGGTCGAATAC

SEQ ID NO: 20

GCGATCGATCAGCCTGAAGgcCCAGGATCtCCTGTTCTCTTCCGCATTAC

SEQ ID NO: 21

CTTTCTCGAGCAGCTGGAGGCGtgGtgGCCACCCGGCCTGGCGATGAAACT

JHE Core SEQ ID NO: 22

CGTGTCCGGTGCCGCTGCTGGGGTCGCGCGCCACATATATGCGTGCGAGGAGCGCGCGCCGGCAGTGCGGCG
TGCGACCCCGACCAGACA